

UNITED STATES PATENT AND TRADEMARK OFFICE  
**CERTIFICATE OF CORRECTION**

PATENT NO. : 7,010,483 B2  
APPLICATION NO. : 09/866854  
DATED : March 7, 2006  
INVENTOR(S) : Jebu Jacob Rajan

Page 1 of 5

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

ON TITLE PAGE, ITEM (56) OTHER PUBLICATIONS

After "Quatieri et al.," "Proceeed-" should read --Proceed--; and  
Page 2, After, "Query expansion": "Appliations" should read --Applications--.

ON TITLE PAGE, ITEM (56) U.S. PATENT DOCUMENTS

Page 2, "Vähätaalo" should read --Vähätaalo et al.--; and  
Page 2, After "Bayesian Separation": "Autoregssive" should read --Autoregressive--.

COLUMN 1

Line 14, "example," should read --for example,--.

COLUMN 4

Line 8, "with out of" should read --without--.

COLUMN 5

Line 51, "step sill" should read --step s111--; and  
Line 56, "step sill" should read --step s111--.

COLUMN 7

Line 58, " $s(n) = a_1s(n-1) + a_2s(n-2) + \dots + a_k s(n-k) + e(n)$

$$s(n-1) = a_1s(n-2) + a_2s(n-3) + \dots + a_k s(n-k-1) + e(n-1)$$

$$s(n-N+1) = a_1s(n-N) + a_2s(n-N-1) + \dots + a_k s(n-k-N+1) + e(n-N+1)$$

should read

(3)"

$$\begin{aligned} &-- "s(n) = a_1s(n-1) + a_2s(n-2) + \dots + a_k s(n-k) + e(n) \\ &s(n-1) = a_1s(n-2) + a_2s(n-3) + \dots + a_k s(n-k-1) + e(n-1) \end{aligned}$$

$\vdots$

$$s(n-N+1) = a_1s(n-N) + a_2s(n-N-1) + \dots + a_k s(n-k-N+1) + e(n-N+1)$$

(3) --.

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COLUMN 8

Lines 29-34, " $e(n) = s(n) - a_1s(n-1) - a_2s(n-2) - \dots - a_k s(n-k)$

$$e(n-1) = s(n-1) - a_1s(n-2) - a_2s(n-3) - \dots - a_k s(n-k-1)$$

$$e(n-N+1) = s(n-N+1) = a_1s(n-N) - a_2s(n-N-1) - \dots - a_k s(n-k-N+1) \quad (5)''$$

should read

$$-e(n) = s(n) - a_1s(n-1) - a_2s(n-2) - \dots - a_k s(n-k)$$

$$e(n-1) = s(n-1) - a_1s(n-2) - a_2s(n-3) - \dots - a_k s(n-k-1)$$

∴

(5)--; and

$$e(n-N+1) = s(n-N+1) = a_1s(n-N) - a_2s(n-N-1) - \dots - a_k s(n-k-N+1)$$

Lines 57-62, " $g(n) = h_1s(n-1) + h_2s(n-2) + \dots + h_r s(n-r) + \epsilon(n)$

$$g(n-1) = h_1s(n-2) + h_2s(n-3) + \dots + h_r s(n-r-1) + \epsilon(n-1)$$

$$q(n-N+1) = h_1s(n-N) + h_2s(n-N-1) + \dots + h_r s(n-r-N+1) + \epsilon(n-N+1) \quad (7)''$$

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should read

$$-g(n) = h_1s(n-1) + h_2s(n-2) + \dots + h_rs(n-r) + \epsilon(n)$$

$$g(n-1) = h_1s(n-2) + h_2s(n-3) + \dots + h_rs(n-r-1) + \epsilon(n-1)$$

...

$$q(n-N+1) = h_1s(n-N) + h_2s(n-N-1) + \dots + h_rs(n-r-N+1) + \epsilon(n-N+1)$$

(7) --.

COLUMN 9

Lines. 47-49, “  $\frac{p(y(n)|s(n), h, r, \sigma_e^2)p(s(n)|a, k, \sigma_e^2)p(a|k)p(h|r)p(\sigma_e^2)p(\sigma_e^2)p(k)p(r)}{p(y(n))}$  ”

should read --  $\frac{p(y(n)|s(n), h, r, \sigma_e^2)p(s(n)|a, k, \sigma_e^2)p(a|k)p(h|r)p(\sigma_e^2)p(\sigma_e^2)p(k)p(r)}{p(y(n))}$  --.

COLUMN 10

Line 5, “  $p(s(n)|a, k, \sigma_e^2) = p(e(n)) \left| \frac{\delta e(n)}{\delta s(n)} \right|_{e(n)=s(n)-Sa}$  (11) ” should read

--  $p(s(n)|a, k, \sigma_e^2) = p(e(n)) \left| \frac{\delta e(n)}{\delta s(n)} \right|_{e(n)} = s(n) - Sa$  (11) --; and

Line 55, “  $p(y(n)|s(n), h, r, \sigma_e^2) = p(\epsilon(n)) \left| \frac{\delta \epsilon(n)}{\delta y(n)} \right|_{\epsilon(n)=q(n)-Yh}$  (14) ” should read

--  $p(y(n)|s(n), h, r, \sigma_e^2) = p(\epsilon(n)) \left| \frac{\delta \epsilon(n)}{\delta y(n)} \right|_{\epsilon(n)} = q(n) - Yh$  (14) --.

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COLUMN 13

Lines 38-44, “  $p(\underline{a}, k | \underline{h}^0, r^0, \sigma_e^{2^0}, \sigma_e^{2^1}, \sigma_h^{2^1}, \underline{s}(n))^0, \underline{y}(n)) \rightarrow \underline{a}^1, k^1$  ”

$$p(\underline{h}, r | \underline{a}^1, k^1, \sigma_e^{2^0}, \sigma_e^{2^1}, \sigma_a^{2^0}, \sigma_h^{2^0}, \underline{s}(n))^0, \underline{y}(n)) \rightarrow \underline{h}^1, k^1$$

$$p(\sigma_e^{2^1} | \underline{a}^1, k^1, h^1, r^1, \sigma_e^{2^0}, \sigma_a^{2^0}, \sigma_h^{2^1}, \underline{s}(n))^0, \underline{y}(n)) \rightarrow \underline{\sigma}_e^{2^1}$$

⋮

$$p(\sigma_h^{2^1} | \underline{a}^1, k^1, h^1, r^1, \sigma_e^{2^1}, \sigma_a^{2^1}, \sigma_h^{2^1}, \underline{s}(n))^0, \underline{y}(n)) \rightarrow \underline{\sigma}_h^{2^1}$$

should read

$$p(\underline{a}, k | \underline{h}^0, r^0, \sigma_e^{2^0}, \sigma_e^{2^1}, \sigma_a^{2^0}, \sigma_h^{2^0}, \underline{s}(n))^0, \underline{y}(n)) \rightarrow \underline{a}^1, k^1$$

$$p(\underline{h}, r | \underline{a}^1, k^1, \sigma_e^{2^0}, \sigma_e^{2^1}, \sigma_a^{2^0}, \sigma_h^{2^0}, \underline{s}(n))^0, \underline{y}(n)) \rightarrow \underline{h}^1, k^1$$

$$-- p(\sigma_e^{2^1} | \underline{a}^1, k^1, h^1, r^1, \sigma_e^{2^0}, \sigma_a^{2^0}, \sigma_h^{2^1}, \underline{s}(n))^0, \underline{y}(n)) \rightarrow \underline{\sigma}_e^{2^1} --$$

⋮

$$p(\sigma_h^{2^1} | \underline{a}^1, k^1, h^1, r^1, \sigma_e^{2^1}, \sigma_a^{2^1}, \sigma_h^{2^1}, \underline{s}(n))^0, \underline{y}(n)) \rightarrow \underline{\sigma}_h^{2^1}$$

COLUMN 17

Line 20, “a vector.” should read -- a vector.--.

COLUMN 18

Line 4, “  $\hat{\underline{S}}(n) = \overline{A} \cdot \hat{\underline{S}}(n-1) + \hat{\underline{e}}(n)$  ” should read

$$-- \hat{\underline{S}}(n) = \overline{A} \cdot \hat{\underline{S}}(n-1) + \hat{\underline{e}}(n) --.$$

COLUMN 19

Line 37, “  $\tilde{\underline{e}}(t) = \sigma_e^2 \underline{r}(t) + \underline{\theta}(t)$  where

$$\tilde{\underline{e}}(t) = [\tilde{\underline{e}}(t) \tilde{\underline{e}}(t-1) \tilde{\underline{e}}(t-2) \dots \tilde{\underline{e}}(t-r+1)]^T$$

” should read

$$-- \tilde{\underline{e}}(t) = \sigma_e^2 \underline{r}(t) + \underline{\eta}(t) \text{ where}$$

$$\tilde{\underline{e}}(t) = [\tilde{\underline{e}}(t) \tilde{\underline{e}}(t-1) \tilde{\underline{e}}(t-2) \dots \tilde{\underline{e}}(t-r+1)]^T --.$$

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COLUMN 20

Line 14, "above described" should read --above-described--;  
Line 44, "above" should read --above- --; and  
Line 53, "above described" should read --above-described--.

COLUMN 22

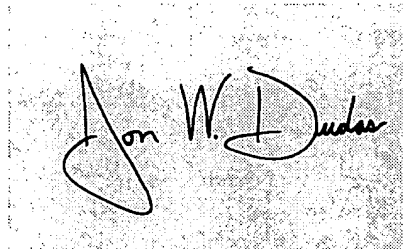
Line 25, "value which was" should read --values which were--.

COLUMN 29

Line 20, "comprising" should read --comprising: ¶--.

Signed and Sealed this

Thirteenth Day of February, 2007

A handwritten signature in black ink, reading "Jon W. Dudas". The signature is written in a cursive style with a large, stylized "J" and "D".

JON W. DUDAS

*Director of the United States Patent and Trademark Office*